

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

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24. (Canceled)

25. (Currently amended) A device for preparing a space in a human spine to receive an insert between adjacent vertebral bodies, said device comprising:

an elongated shaft portion including a drive shaft disposed therein, the drive shaft including a gear at its distal end, whereby the gear is configured to mate with corresponding teeth on the form cutter;

a housing disposed at the distal end of said elongated shaft portion;

a drive means;

a drive source operably connected to said drive means, wherein the drive shaft is rotatably driven by the drive source; and

a form cutter mountable on said housing and movable by said drive means, wherein:

said form cutter has at least one top milling surface and bottom milling surface selected to create a surface contour in one of the adjacent vertebral bodies as said form cutter is moved by said drive means, the bottom milling surface is provided with a beveled gearing surface, said beveled gearing surface engages teeth on said gear, and said gear and said beveled gearing surface cooperate to rotate said form cutter as said drive shaft is rotatably driven.

26. (Previously Presented) The device of claim 25, wherein said housing is fixedly connected to said elongated shaft portion.

27. (Previously Presented) The device of claim 25, wherein:

said housing includes a shaft support; and

said form cutter includes a form cutter shaft configured to fit within said shaft support of said housing.

28. (Previously Presented) The device of claim 25, wherein said at least one milling surface is configured such that it is operated in a plane generally parallel to the surface contour formed in one of the adjacent vertebral bodies as said form cutter is moved by said drive means.

29. (Previously Canceled)

30. (Previously Presented) The device of claim 25 including drive means that operatively couples said form cutter to said drive source.

31. (Previously Presented) The device of claim 30, wherein:
the drive means comprises a drive shaft having a proximal end and a distal end;
said drive shaft is adapted to be received in said elongated shaft portion;
the distal end of said drive shaft is operatively coupled to said form cutter to move said form cutter; and

the proximal end of said drive shaft is operatively coupled to said drive source.

32. (Previously Presented) The device of claim 25, wherein said drive means is disposed at least in part in said elongated shaft portion.

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Currently amended) The device of claim 25, wherein:

said housing includes a surface formed on a side of said housing opposite said at least one milling surface; and

said surface is configured to allow a surgeon to increase the pressure of said at least one milling surface against the one of the adjacent vertebral bodies.

38. (Previously Presented) The device of claim 25, wherein said form cutter includes a leading edge configured as a bone cutting surface.

39. (Currently amended) The device of claim ~~36~~25, wherein at least one of said ~~at least two~~ milling surfaces of said form cutter is convex.

40. (Currently amended) The device of claim ~~36~~25, wherein at least one of said ~~at least two~~ milling surfaces of said form cutter is tapered outwardly from a front surface of said form cutter.

41. (Canceled)

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51. (Previously Canceled)

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81. (Canceled)

82. (Currently amended) A device for preparing a space in a human spine to receive an insert between adjacent vertebral bodies, said device comprising:

an elongated shaft portion including a drive shaft disposed therein, the drive shaft including a gear at its distal end, whereby the gear is configured to mate with corresponding teeth on the form cutter;

a housing disposed at the distal end of said elongated shaft portion;

a drive means;

a drive source operably connected to said drive means, wherein the drive shaft is rotatably driven by the drive source;

a form cutter mountable on said housing and movable by said drive means, wherein:

said form cutter has at least one top milling surface and bottom milling surface selected to create a predetermined surface contour in one of the adjacent vertebral bodies as said form cutter is moved by said drive means, the bottom milling surface is provided with a beveled gearing surface, said beveled gearing surface engages teeth on said gear, and said gear and said beveled gearing surface cooperate to rotate said form cutter as said drive shaft is rotatably driven; and

said housing has a surface formed on a side of said housing opposite said milling surface.

83. (Previously Presented) The device of claim 82, wherein said housing is fixedly connected to said elongated shaft portion.

84. (Previously Presented) The device of claim 82, wherein:
said housing includes a shaft support; and
said form cutter includes a form cutter shaft configured to fit within said shaft support of said housing.

85. (Previously Presented) The device of claim 82, wherein said at least one milling surface is configured such that it is operated in a plane generally parallel to the surface contour formed in one of the adjacent vertebral bodies as said form cutter is moved by said drive means.

86. (Previously Canceled)

87. (Previously Presented) The device of claim 82 including drive means that operatively couples said form cutter to said drive source.

88. (Previously Presented) The device of claim 87, wherein:
said drive means comprises a drive shaft having a proximal end and a distal end;
said drive shaft is adapted to be received in said elongated shaft portion;
the distal end of said drive shaft is operatively coupled to said form cutter to move said form cutter; and

the proximal end of said drive shaft is operatively coupled to said drive source.

89. (Previously Presented) The device of claim 82, wherein said drive means is disposed at least in part in said elongated shaft portion.

90. (Canceled)

91. (Canceled)

92. (Canceled)

93. (Canceled)

94. (Currently amended) The device of claim ~~93~~ 82, wherein said form cutter includes a leading edge configured as a bone cutting surface.

95. (Currently amended) The device of claim ~~93~~ 82, wherein at least one of said ~~at least two~~ milling surfaces of said form cutter is convex.

96. (Currently amended) The device of claim ~~93~~ 82, wherein at least one of said ~~at least two~~ milling surfaces of said form cutter is tapered outwardly from a front surface of said form cutter.

97. (Currently amended) A device for preparing a space in a human spine to receive an insert between adjacent vertebral bodies, said device comprising:

an elongated shaft portion including a drive shaft disposed therein, the drive shaft including a gear at its distal end, whereby the gear is configured to mate with corresponding teeth on the form cutter;

a housing disposed at the distal end of said elongated shaft portion;

a drive means;

a drive source operably connected to said drive means, wherein the drive shaft is rotatably driven by the drive source; and

a form cutter mountable on said housing and movable by said drive means, wherein:

said form cutter has at least one top face having first and second milling surface surfaces selected to create a predetermined surface contour in one of the adjacent vertebral bodies as said form cutter is moved by said drive means, the bottom surface is provided with a beveled gearing surface, said beveled gearing surface engages teeth on said gear, and said

gear and said beveled gearing surface cooperate to rotate said form cutter as said drive

shaft is rotatably driven.

98. (Previously Canceled)

99. (Previously Canceled)

100. (Previously Presented) The device of claim 97, wherein said housing is fixedly connected to said elongated shaft portion.

101. (Previously Presented) The device of claim 97, wherein:

said housing includes a shaft support; and

said form cutter includes a form cutter shaft configured to fit within said shaft support of said housing.

102. (Currently amended) The device of claim 97, wherein said ~~top face at least one milling surface~~ is configured such that it is operated in a plane generally parallel to the surface contour formed in one of the adjacent vertebral bodies as said form cutter is moved by said drive means.

103. (Previously Canceled)

104. (Previously Presented) The device of claim 97 including drive means that operatively couples said form cutter to said drive source.

105. (Previously Presented) The device of claim 104, wherein:

said drive means comprises a drive shaft having a proximal end and a distal end;

said drive shaft is adapted to be received in said elongated shaft portion;

the distal end of said drive shaft is operatively coupled to said form cutter to move said form cutter; and

the proximal end of said drive shaft is operatively coupled to said drive source.

106. (Previously Presented) The device of claim 97, wherein said drive means is disposed at least in part in said elongated shaft portion.

107. (Canceled)

108. (Canceled)

109. (Canceled)

110. (Canceled)

111. (Currently amended) The device of claim 97, wherein said housing includes a surface formed on a side of said housing opposite said top face milling surface, said surface being configured to allow a surgeon to increase the pressure of said top face milling surface against the one of the adjacent vertebral bodies.

112. (Previously Canceled)

113. (Previously Canceled)

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125. (Canceled)

126. (Previously Presented) A device for preparing a space in a human spine to receive an insert between adjacent vertebral bodies, said device comprising:

an elongated shaft portion;

a housing disposed at the distal end of said elongated shaft portion;

a drive means;

a drive source operably connected to said drive means; and

a form cutter mountable on said housing and movable by said drive means, wherein:

said form cutter has at least one milling surface selected to create a concave-convex surface contour in one of the adjacent vertebral bodies as said form cutter is moved by said drive means, said form cutter having a beveled gearing surface on the undersurface of the form cutter, wherein said beveled gearing surface cooperates with a pinion gear provided on the distal end of a drive shaft.

127. (Previously Presented) A device for preparing a space in a human spine to receive an insert between adjacent vertebral bodies, said device comprising:

an elongated shaft portion;

a housing disposed at the distal end of said elongated shaft portion;

a drive shaft;

a drive source operably connected to said drive shaft; and

a form cutter mountable on said housing and movable by said drive shaft, wherein:

said form cutter has at least one milling surface selected to create a surface contour in one of the adjacent vertebral bodies as said form cutter is moved by said drive shaft, and an undersurface having a beveled gearing surface which cooperates with a pinion gear on said drive shaft.

128. (Canceled)

129. (Previously Presented) A device for preparing a space in a human spine to receive an insert between adjacent vertebral bodies, said device comprising:

an elongated shaft portion;

a housing disposed at the distal end of said elongated shaft portion;

a drive shaft;

a drive source operably connected to said drive shaft; and

a form cutter mountable on said housing and movable by said drive shaft, wherein:

said form cutter has at least one milling surface selected to create a surface contour in one of the adjacent vertebral bodies as said form cutter is moved by said drive shaft, and an undersurface having a tooth surface which cooperates with a pinion gear on said drive shaft.

130. (Canceled)

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134. (Canceled)

135. (Canceled)

136. (Canceled)

137. (Canceled)

138. (Canceled)

139. (New) The device of claim 126, wherein said housing is fixedly connected to said elongated shaft portion.

140. (New) The device of claim 126, wherein:

said housing includes a shaft support; and

said form cutter includes a form cutter shaft configured to fit within said shaft support of said housing.

141. (New) The device of claim 126, wherein said at least one milling surface is configured such that it is operated in a plane generally parallel to the surface contour formed in one of the adjacent vertebral bodies as said form cutter is moved by said drive means.

142. (New) The device of claim 126 including drive means that operatively couples said form cutter to said drive source.

143. (New) The device of claim 142, wherein:
the drive means comprises a drive shaft having a proximal end and a distal end;
said drive shaft is adapted to be received in said elongated shaft portion;
the distal end of said drive shaft is operatively coupled to said form cutter to move said form cutter; and

the proximal end of said drive shaft is operatively coupled to said drive source.

144. (New) The device of claim 126, wherein said drive means is disposed at least in part in said elongated shaft portion.

145. (New) The device of claim 126, wherein:
said housing includes a surface formed on a side of said housing opposite said at least one milling surface; and

said surface is configured to allow a surgeon to increase the pressure of said at least one milling surface against the one of the adjacent vertebral bodies.

146. (New) The device of claim 126, wherein said form cutter includes a leading edge configured as a bone cutting surface.

147. (New) The device of claim 126, wherein at least one of said milling surfaces of said form cutter is convex.

148. (New) The device of claim 126, wherein at least one of said milling surfaces of said form cutter is tapered outwardly from a front surface of said form cutter.

149. (New) The device of claim 127, wherein said housing is fixedly connected to said elongated shaft portion.

150. (New) The device of claim 127, wherein:
said housing includes a shaft support; and
said form cutter includes a form cutter shaft configured to fit within said shaft support of said housing.

151. (New) The device of claim 127, wherein said at least one milling surface is configured such that it is operated in a plane generally parallel to the surface contour formed in one of the adjacent vertebral bodies as said form cutter is moved by said drive means.

152. (New) The device of claim 127 including drive means that operatively couples said form cutter to said drive source.

153. (New) The device of claim 152, wherein:
the drive means comprises a drive shaft having a proximal end and a distal end;
said drive shaft is adapted to be received in said elongated shaft portion;
the distal end of said drive shaft is operatively coupled to said form cutter to move said form cutter; and

the proximal end of said drive shaft is operatively coupled to said drive source.

154. (New) The device of claim 127, wherein said drive means is disposed at least in part in said elongated shaft portion.

155. (New) The device of claim 127, wherein:

said housing includes a surface formed on a side of said housing opposite said at least one milling surface; and

said surface is configured to allow a surgeon to increase the pressure of said at least one milling surface against the one of the adjacent vertebral bodies.

156. (New) The device of claim 127, wherein said form cutter includes a leading edge configured as a bone cutting surface.

157. (New) The device of claim 127, wherein at least one of said milling surfaces of said form cutter is convex.

158. (New) The device of claim 127, wherein at least one of said milling surfaces of said form cutter is tapered outwardly from a front surface of said form cutter.

159. (New) The device of claim 129, wherein said housing is fixedly connected to said elongated shaft portion.

160. (New) The device of claim 129, wherein:

said housing includes a shaft support; and

said form cutter includes a form cutter shaft configured to fit within said shaft support of said housing.

161. (New) The device of claim 129, wherein said at least one milling surface is configured such that it is operated in a plane generally parallel to the surface contour formed in one of the adjacent vertebral bodies as said form cutter is moved by said drive means.

162. (New) The device of claim 129 including drive means that operatively couples said form cutter to said drive source.

163. (New) The device of claim 162, wherein:

the drive means comprises a drive shaft having a proximal end and a distal end;

said drive shaft is adapted to be received in said elongated shaft portion;

the distal end of said drive shaft is operatively coupled to said form cutter to move said form cutter; and

the proximal end of said drive shaft is operatively coupled to said drive source.

164. (New) The device of claim 129, wherein said drive means is disposed at least in part in said elongated shaft portion.

165. (New) The device of claim 129, wherein:

said housing includes a surface formed on a side of said housing opposite said at least one milling surface; and

said surface is configured to allow a surgeon to increase the pressure of said at least one milling surface against the one of the adjacent vertebral bodies.

166. (New) The device of claim 129, wherein said form cutter includes a leading edge configured as a bone cutting surface.

167. (New) The device of claim 129, wherein at least one of said milling surfaces of said form cutter is convex.

168. (New) The device of claim 129, wherein at least one of said milling surfaces of said form cutter is tapered outwardly from a front surface of said form cutter.